AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Previously Presented)   A transmitter comprising:

a tone ordering element, wherein the tone ordering element is configured to assign bits to each tone in a plurality of tones according to bit and gain information;

a memory containing the bit and gain information, the bit and gain information configured to associate each of at least a portion of a plurality of tones with a bit number, wherein the bit number associated with a first one of the tones is different from the bit number associated with a second one of the tones, where the first one of the tones is adjacent to the second one of the tones; and

wherein each of the portion of the plurality of tones has an original bit density b_i, and wherein the bit and gain information is capable of designating a reduction of the original bit density b_i by one on alternate tones within the portion of the plurality of tones.

3. (Cancelled)

4. (Previously Presented)   The transmitter of claim 2, wherein the portion of the plurality of tones is selected based on correlated noise affecting the portion of the plurality of tones.

5. (Previously Presented)   The transmitter of claim 2, wherein the bit and gain information is capable of being dynamically determined by a receiver.

6-7.   (Cancelled)

8. (Previously Presented)   A transmitting system comprising:

means for tone ordering, wherein the means for tone ordering is configured to assign bits to each of a plurality of tones

means for assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones; and

wherein each of the plurality of tones has an original bit density b_i, and wherein the means for assigning is capable of designating a reduction of the original bit density b_i by one on alternate tones within the plurality of tones.

9-10. (Cancelled)

11. (Previously Presented)   The transmitting system of claim 8, wherein the means for assigning is capable of being dynamically determined by a receiver.

12-13. (Cancelled)

14. (Previously Presented)   A method for transmitting data, comprising the steps of:

receiving bits and relative gain information, wherein the bits and relative gain information designates a variable number of bits to be assigned to each of a plurality of tones; and

assigning a first number of bits to a first one of the tones and assigning a second number of bits to a second one of the tones, wherein the first number is different from the second number, wherein the first one of the tones is adjacent to the second one of the tones; and

wherein each of the plurality of tones has an original bit density b_i, and wherein the bits and relative gain information designates a reduction of the original bit density b_i by one on alternate tones.

15. (Cancelled)

16. (Previously Presented)   The method of claim 14, wherein the first and second tones are selected based on correlated noise affecting the first and second tones.

17. (Cancelled)

18. (Previously Presented)   The method of claim 14, wherein the bits and relative gain information is dynamically calculated by a receiver.

19-20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23-25. (Cancelled)

26-28. (Cancelled)

29. (Previously Presented)   A receiver, comprising:

a convolutional decoder, the convolutional decoder cable of outputting convolutionally decoded tone ordered interleaved data;

a bit ordering element, wherein the bit ordering element is capable of re-ordering the convolutionally decoded tone ordered interleaved data;

wherein a transmitter supplies the data to the receiver and the transmitter codes the data with a tone ordering element and a bit and gain table, wherein the tone ordering element is capable of assigning bits to a plurality of tones and the bit and gain table is capable of designating that within a portion of the plurality of tones a first number of bits is assigned to each of the plurality of tones, and wherein the first number of bits assigned to each of the plurality of tones is different from a second number of bits assigned to each adjacent tone; and

wherein each of the plurality of tones has an original bit density b_i, and wherein the bit and gain table is capable of designating a reduction of the original bit density b_i by one on alternate tones within the plurality of tones.

30. (Cancelled)

31. (Previously Presented)   The receiver of claim 29, wherein the portion of the plurality of tones is selected based on correlated noise affecting the portion of the plurality of tones.

32. (Cancelled)

33. (Cancelled)

34-36 (Cancelled)

37. (Cancelled)

38. (Currently Amended)   The transmitter of claim [[37]] 39, further including:

logic for selecting the portion based on correlated noise affecting the plurality of tones.

39. (Currently Amended) ~~The transmitter of claim 37,~~A transmitter comprising:

memory containing bit and gain information, the bit and gain information configured to associate each of a plurality of tones with a number of bits; and

a tone ordering element configured to assign bits from a data frame to the tones, the tone ordering element comprising:

~~the tone ordering element further comprising:~~

_____logic for assigning bits, each of the bits to one of the tones according to the bit and gain information to produce an ordered bit table; and

_____logic for modifying at least a portion of the assignments from the ordered bit table such that adjacent tones have different bit densities.

40. (Currently Amended) A method for transmitting data comprising the steps of:

receiving bit and gain information, the bit and gain information configured to associate each of a series of tones with a bit density; and

assigning data bits from a data frame to at least a portion of the tones ~~in an interleaved manner such that tones that are adjacent in frequency are assigned different bit densities.~~ according to the bit and gain information to produce an ordered bit table; and

modifying at least a portion of the assignments from the ordered bit table such that adjacent tones have different bit densities.

41. (Currently Amended) A computer-readable-medium having a computer program for transmitting data, the computer program comprising the steps of:

receiving bit and gain information, the bit and gain information configured to associate each of a plurality of tones with a bit density; and

assigning data bits to the tones according to the bit and gain information to produce an ordered bit table; and

interleaving those bits in the ordered bit table that are assigned to frequency-adjacent tones such that frequency-adjacent tones have different bit densities.

42. (Previously Presented)   The transmitting system of claim 8, wherein the portion of the plurality of tones is selected based on correlated noise affecting the portion of the plurality of tones.

43-48. (Cancelled)

49. (New)   The transmitter of claim 39, wherein the bit and gain information is capable of being set by a receiver.

50. (New)   The transmitter of claim 39, wherein the bit and gain information is capable of being dynamically set by a receiver.

51. (New)   The transmitter of claim 39, wherein the bit and gain information operates to boost the power on a first group of tones within the plurality of tones and to lower the power on a second group of tones within the plurality of tones.

52. (New)   The method of claim 40, wherein the received bit and gain information is capable of being set by a receiver.

53. (New)   The method of claim 40, wherein the received bit and gain information is capable of being dynamically set by a receiver.

54. (New)   The method of claim 40, further including the step of:

selecting the portion based on correlated noise affecting the plurality of tones.

55. (New)   The method of claim 40, wherein the bit and gain information operates to

boost the power on a first group of tones within the plurality of tones and to lower the power on a

second group of tones within the plurality of tones.

56. (New)   The computer-readable medium of claim 41, wherein the received bit and

gain information is capable of being set by a receiver.

57. (New)   The computer-readable medium of claim 41, wherein the received bit and

gain information is capable of being dynamically set by a receiver.

58. (New)   The computer-readable medium of claim 41, the computer program further

including the step of:

selecting the portion based on correlated noise affecting the plurality of tones.